

EXAMINER AMENDMENT

An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Richard Auchterlonie on 1/21/2011.

Claims 5, 10, 23, 28, 32 and 35-36 have been amended as follow:

5. (Currently amended) In a data processing network including distributed processing units, a method comprising:

a processor executing computer instructions to perform the steps of:

obtaining a respective utilization value of each distributed processing unit;

applying a function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit;
and

using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit;

wherein the respective weight for said each distributed processing unit is programmed into a mapping table, and the function is applied to the respective utilization value of said each distributed processing unit to obtain the respective weight for said each distributed processing unit by indexing the mapping table with the respective utilization value of said each distributed processing unit to obtain the respective weight for said each distributed processing unit.

10. (Currently amended) In a data processing network including distributed processing units, a method comprising:

a processor executing computer instructions to perform the steps of:

obtaining a respective utilization value of each distributed processing unit;

applying a function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit;
and

using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit;

wherein the respective weights for the distributed processing units are used for distributing work requests to the distributed processing units by creating a distribution list containing entries indicating the distributed processing units, the respective weight

for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list, and re-randomizing the distribution list for re-use once the end of the distribution list is reached during the distribution of the work requests to the distributed processing units as indicated by the entries in the randomized distribution list.

23. (Currently amended) A data processing system comprising distributed processing units and a memory storing computer instructions and a processor coupled to the distributed processing units for distributing work requests to the distributed processing units, the computer instructions, when executed by the processor performing the steps of the processor being programmed for:

- obtaining a respective utilization value of each distributed processing unit;
- applying a function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit;
- and
- using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit;

wherein the respective weight for said each distributed processing unit is programmed into a mapping table, and the processor is programmed to apply the function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit by indexing the mapping table with said each respective utilization value of said each distributed processing unit to obtain the respective weight for said each distributed processing unit.

28. (Currently amended) A data processing system comprising distributed processing units and a memory storing computer instructions a processor coupled to the distributed processing units for distributing work requests to the distributed processing units, the computer instructions, when executed by the processor performing the steps of the processor being programmed for:

obtaining a respective utilization value of each distributed processing unit;
applying a function to the respective utilization value of said each distributed processing unit to obtain a respective weight for said each distributed processing unit;
and

using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit;

wherein the processor is programmed for using the respective weights for the distributed processing units for distributing work requests to the distributed processing

units by creating a distribution list containing entries indicating the distributed processing units, the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list, and re-randomizing the distribution list for re-use once the end of the distribution list is reached during the distribution of the work requests to the distributed processing units as indicated by the entries in the randomized distribution list.

32. (Currently amended) A data processing system comprising virus checking servers and a network file server coupled to the virus checking servers for distributing virus checking requests to the virus checking servers, the network file server having a memory storing computer instructions and a processor, the computer instructions when executed by the processor, performing the steps of: ~~being programmed for:~~

obtaining a respective utilization value of each virus checking server, the respective utilization value of said each virus checking server indicating a percentage of saturation of said each virus checking server;

applying a function to the respective utilization value of said each virus checking server to obtain a respective weight for said each virus checking server; and using the respective weights for the virus checking servers for weighted round-robin

load balancing of virus checking requests from the network file server to the virus checking servers;

wherein the respective weight for said each virus checking server is programmed into a mapping table, and the network file server is programmed for indexing the mapping table with said each respective utilization value of said each virus checking server to obtain the respective weight for said each virus checking server.

35. (Currently amended) A data processing system comprising virus checking servers and a network file server coupled to the virus checking servers for distributing virus checking requests to the virus checking servers, the network file server having a memory storing computer instructions and a processor, the computer instructions when executed by the processor, performing the steps of: ~~being programmed for:~~

obtaining a respective utilization value of each virus checking server, the respective utilization value of said each virus checking server indicating a percentage of saturation of said each virus checking server;

applying a function to the respective utilization value of said each virus checking server to obtain a respective weight for said each virus checking server; and

using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers; and

wherein the network file server is programmed for using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking

requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers, the respective weight for said each virus checking server specifying the number of the entries indicating said each virus checking server, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the virus checking requests from the network file server to the virus checking servers as indicated by the entries in the randomized distribution list, and re-randomizing the distribution list for re-use once the end of the distribution list is reached during the distributing of the work requests to the virus checking servers as indicated by the entries in the randomized distribution list.

36. (Currently amended) A data processing system comprising virus checking servers and a network file server coupled to the virus checking servers for distributing virus checking requests to the virus checking servers, the network file server having a memory storing computer instructions and a processor, the computer instructions when executed by the processor, performing the steps of: being programmed for:

obtaining a respective utilization value of each virus checking server, the respective utilization value of said each virus checking server indicating a percentage of saturation of said each virus checking server;

applying a function to the respective utilization value of said each virus checking server to obtain a respective weight for said each virus checking server; and

using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers; and

wherein the network file server is programmed for using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers, the respective weight for said each virus checking server specifying the number of the entries indicating said each virus checking server, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the virus checking requests from the network file server to the virus checking servers as indicated by the entries in the randomized distribution list, and

wherein the network file server is programmed for collecting utilization statistics from the virus checking servers at the start of a heartbeat interval, for randomizing the distribution list repetitively during use of the distribution list for load balancing of virus checking requests during the heartbeat interval, for collecting a new set of utilization statistics from the virus checking servers at the start of a following heartbeat interval, and for producing a new distribution list from the new set of utilization statistics for load balancing of virus checking requests during the following heartbeat interval.

REASONS FOR ALLOWANCE

Claims 5, 10, 14, 17, 18, 23, 28, 32, 35 and 36 are allowed over the prior art of records.

The following is an Examiner's statement of reasons for the indication of allowable subject matter: Claims 5, 10, 14, 17, 18, 23, 28, 32, 35 and 36 are allowable over the prior art of records because the Examiner found neither prior art cited in its entirety, nor based on the prior art, found any motivation to combine any of the prior arts.

The reason for allowance for claims 5 and 23 is using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit; wherein the respective weight for said each distributed processing unit is programmed into a mapping table, and the function is applied to the respective utilization value of said each distributed processing unit to obtain the respective weight for said each distributed processing unit by indexing the mapping table with the respective utilization value of said each distributed processing unit to obtain the respective weight for said each distributed processing unit, along with other features, as cited in the independent claim 5.

The reason for allowance for claims 10, 28 and 35 is using the respective weights for the distributed processing units for distributing work requests to the distributed processing units so that the respective weight for said each distributed processing unit specifies a respective frequency at which the work requests are distributed to said each distributed processing unit; wherein the respective weights for the distributed processing units are used for distributing work requests to the distributed processing units by creating a distribution list containing entries indicating the distributed processing units, the respective weight for said each distributed processing unit specifying the number of the entries indicating said each distributed processing unit, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the work requests to the distributed processing units as indicated by the entries in the randomized distribution list, and re-randomizing the distribution list for re-use once the end of the distribution list is reached during the distribution of the work requests to the distributed processing units as indicated by the entries in the randomized distribution list, along with other features, as cited in the independent claim 10.

The reason for allowance for claims 14 and 32 is the network file server applying a function to the respective utilization value of said each virus checking server to obtain a respective weight for said each virus checking server; and the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus

checking servers; wherein the respective weight for said each virus checking server is programmed into a mapping table, and the network file server indexes the mapping table with said each respective utilization value to obtain the respective weight for said each virus checking server, along with other features, as cited in the independent claim 14.

The reason for allowance for claim 17 is the network file server using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers; wherein the respective weights for the virus checking servers are used for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers, the respective weight for said each virus checking server specifying the number of the entries indicating said each virus checking server, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the virus checking requests from the network file server to the virus checking servers as indicated by the entries in the randomized distribution list, and re-randomizing the distribution list for re-use once the end of the distribution list is reached during the distributing of the work requests to the virus checking servers as indicated by the entries in the randomized distribution list, along with other features, as cited in the independent claim 17.

The reason for allowance for claim 18 is the respective weights for the virus checking servers are used for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers, the respective weight for said each virus checking server specifying the number of the entries indicating said each virus checking server, and by randomizing the distribution list, and accessing the randomized distribution list for distributing the virus checking requests from the network file server to the virus checking servers as indicated by the entries in the randomized distribution list, and wherein the network file server obtains the utilization values of the virus checking servers at the start of a heartbeat interval, randomizes the distribution list repetitively during use of the distribution list for load balancing of virus checking requests during the heartbeat interval, obtains new utilization values of the virus checking servers at the start of a following heartbeat, along with other features, as cited in the independent claim 18.

The reason for allowance for claim 36 is the network file server is programmed for using the respective weights for the virus checking servers for weighted round-robin load balancing of virus checking requests from the network file server to the virus checking servers by creating a distribution list containing entries indicating the virus checking servers, the respective weight for said each virus checking server specifying the number of the entries indicating said each virus checking server, and by randomizing the distribution list, and accessing the randomized distribution list for

distributing the virus checking requests from the network file server to the virus checking servers as indicated by the entries in the randomized distribution list, and wherein the network file server is programmed for collecting utilization statistics from the virus checking servers at the start of a heartbeat interval, for randomizing the distribution list repetitively during use of the distribution list for load balancing of virus checking requests during the heartbeat interval, for collecting a new set of utilization statistics from the virus checking servers at the start of a following heartbeat interval, and for producing a new distribution list from the new set of utilization statistics for load balancing of virus checking requests during the following heartbeat interval, along with other features, as cited in the independent claim 36.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance".

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CAMQUY TRUONG whose telephone number is (571)272-3773. The examiner can normally be reached on 9:00am - 5:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Emerson C. Puente can be reached on (571)272-3652. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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